TSG RAN Meeting #18 **RP-020772**
New Orleans, Louisiana, USA, 3 - 6 December, 2002

Title **CRs (Rel-4 and Rel-5 Category A) to TS 25.414 on Clarification on IP fragmentation over Iu interface (linked to CN4 CRs)**
Source **TSG RAN WG3**
Agenda Item **7.3.6**

RAN3 Tdoc	Spec	curr. Vers.	new Vers.	REL	CR	Rev	Cat	Title	Work item
R3-022535	25.414	4.4.0	4.5.0	REL-4	044	1	F	Clarification on IP fragmentation over Iu interface (set 1: changes in RAN3 specs)	TEI4
R3-022536	25.414	5.2.0	5.3.0	REL-5	045	1	A	Clarification on IP fragmentation over Iu interface (set 1: changes in RAN3 specs)	TEI4

3GPP TSG-RAN WG3 Meeting #33 **Tdoc ⌘R3-022535**
Sophia-Antipolis, France, 11th – 15th November 2002

CR-Form-v7

CHANGE REQUEST

⌘ **25.414** **CR** **044** ⌘ **rev** **1** ⌘ Current version: **4.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Clarification on IP fragmentation over Iu interface (set 1: changes in RAN3 specs)
Source:	⌘	RAN WG3
Work item code:	⌘	TEI4
Date:	⌘	25/10/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Support of IP fragmentation over Iu interface is missing. This was probably missed in the GTP specification when it was made applicable to the Iu interface as well.
Summary of change:	⌘	Added clarification that when the Iu-ps is based on IPv4, the RNC shall support fragmentation and assembly of the resulting IP packet after GTP encapsulation. Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) as IP fragmentation may not be supported by an existing implementation. This CR has an impact under functional point of view for implementations not behaving like that indicated in the CR. The impact can be considered isolated because the change affects only the IP transport layer function.
Consequences if not approved:	⌘	Lack of completeness of the specification for the Iu aspect may mislead implementations and lead to interoperability problems.

Clauses affected:	⌘	6.1.3				
		Y	**N**			
Other specs affected:	⌘	**X**		Other core specifications	⌘	29.060v5.3.0 CR373 25.415v5.2.0 CR045
			X	Test specifications		
			X	O&M Specifications		

Other comments: ⌘

How to create CRs using this form:

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6 Packet switched domain

6.1 Transport network user plane

6.1.1 General

Figure 3 shows the protocol stack for the transport network user plane on the Iu interface towards the packet switched domain.

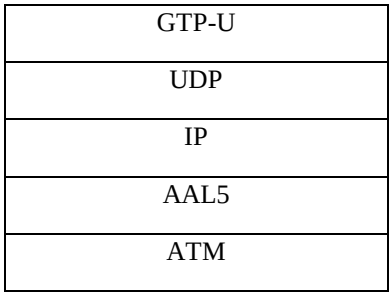

Figure 3

The protocol architecture for the User Plane of the Iu interface towards the packet switched domain shall be GTP-U [17] over UDP over IP over AAL5 over ATM. One or several AAL5/ATM permanent VC's may be used as the common layer 2 resources between the UTRAN and the packet switched domain of the CN.

One switched VC may be used per user flow. The standardisation of the procedures and protocols for use of Switched VC is outside the scope of 3GPP.

Congestion control shall be performed over the Iu user plane toward the packet switched domain using buffer management and no flow control.

6.1.2 GTP-U

The GTP-U [17] protocol shall be used over the Iu interface toward the packet switched domain.

6.1.3 UDP /IP

The path protocol used shall be UDP [12], which is specified in RFC 768.

The UDP port number for GTP-U shall be as defined in [17].

IPv4 [13] (RFC 791) shall be supported; IPv6 [16] (RFC 2460) support is optional.

RNC shall support fragmentation and assembly of GTP packets at the IP layer.

There may be one or several IP addresses in the RNC and in the CN. The packet processing function in the CN shall send downstream packets of a given RAB to the RNC IP address (received in RANAP) associated to that particular RAB. The packet processing function in the RNC shall send upstream packets of a given RAB to the CN IP address (received in RANAP) associated to that particular RAB.

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Sophia-Antipolis, France, 11th – 15th November 2002

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CHANGE REQUEST

⌘ **25.414** **CR** **045** ⌘ **rev** **1** ⌘ Current version: **5.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [ ] Radio Access Network [X] Core Network [X]

Title:	⌘	Clarification on IP fragmentation over Iu interface (set 1: Changes in RAN3 specs)
Source:	⌘	RAN WG3
Work item code:	⌘	TEI5
Date:	⌘	25/10/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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Clauses affected:	⌘	6.1.3.3			
		Y	**N**		
Other specs affected:	⌘	**X**		Other core specifications	⌘ 29.060v5.3.0 CR366 25.414v4.4.0 CR044
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘	

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6.1.3 IP Transport Option

6.1.3.1 General

In the IP transport option GTP-U [17] over UDP over IP shall be supported as the transport for data streams on the Iu-PS interface. The data link layer is as specified in subclause 4.2.

The transport bearer is identified by the GTP-U TEID [17] and the IP address (source TEID, destination TEID, source IP address, destination IP address).

6.1.3.2 GTP-U

The GTP-U [17] protocol shall be used over the Iu interface toward the packet switched domain.

6.1.3.3 UDP /IP

The path protocol used shall be UDP [12].

The UDP port number for GTP-U shall be as defined in [17].

An IP RNC/CN-node shall support IPv6. The support of IPv4 is optional.

NOTE: This does not preclude single implementation and use of IPv4.

IP dual stack support is recommended for the potential transition period from IPv4 to IPv6 in the transport network.

RNC shall support fragmentation and assembly of GTP packets at the IP layer.

There may be one or several IP addresses in the RNC and in the CN. The packet processing function in the CN shall send downstream packets of a given RAB to the RNC IP address (received in RANAP) associated to that particular RAB. The packet processing function in the RNC shall send upstream packets of a given RAB to the CN IP address (received in RANAP) associated to that particular RAB.

6.1.3.4 Diffserv code point marking

IP Differentiated Services code point marking [31] shall be supported. The Diffserv code point may be determined from the application parameters.